



THE UNIVERSITY *of* EDINBURGH

## Edinburgh Research Explorer

### **Cross-Cultural Comparison of Maternal Mind-Mindedness among Australian and Chinese Mothers of Toddlers**

**Citation for published version:**

Dai, Q, McMahon, C & Lim, AK 2019, 'Cross-Cultural Comparison of Maternal Mind-Mindedness among Australian and Chinese Mothers of Toddlers', *International Journal of Behavioral Development*.  
<https://doi.org/10.1177/0165025419874133>

**Digital Object Identifier (DOI):**

[10.1177/0165025419874133](https://doi.org/10.1177/0165025419874133)

**Link:**

[Link to publication record in Edinburgh Research Explorer](#)

**Document Version:**

Peer reviewed version

**Published In:**

International Journal of Behavioral Development

**General rights**

Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

**Take down policy**

The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact [openaccess@ed.ac.uk](mailto:openaccess@ed.ac.uk) providing details, and we will remove access to the work immediately and investigate your claim.



**Cross-cultural comparison of maternal mind-mindedness among  
Australian and Chinese mothers**

Qian Dai,<sup>1</sup> Catherine McMahon,<sup>2</sup> and Ai Keow Lim<sup>3</sup>

<sup>1</sup> Centre for Psychological Health and Education Centre, Sichuan University, China

<sup>2</sup> Centre for Emotional Health, Department of Psychology, Macquarie University, Australia

<sup>3</sup> Child Life and Health Department, School of Clinical Sciences, University of Edinburgh, UK

Corresponding author:

Catherine McMahon, Centre for Emotional Health, Department of Psychology, Macquarie University, North Ryde, NSW, 2109, Australia.

Email: [cathy.mcmahon@mq.edu.au](mailto:cathy.mcmahon@mq.edu.au)

# **Cross-Cultural Comparison of Maternal Mind-Mindedness among Australian and Chinese Mothers of Toddlers**

## **Abstract**

Evidence suggests that parental mind-mindedness is important for children's social-emotional development, however almost all research exploring mind-mindedness has been conducted with families from Western backgrounds. The current study explored cross-cultural differences in mind-mindedness based on observed real-time interactions between urban Australian ( $N = 50$ ,  $M_{\text{age}} = 30.34$  years,  $SD = 3.14$ ) and urban mainland Chinese ( $N = 50$ ,  $M_{\text{age}} = 29.18$  years,  $SD = 4.14$ ) mothers and their toddlers (Australian:  $M_{\text{age}} = 18.98$  months,  $SD = 0.87$ ; Chinese:  $M_{\text{age}} = 18.50$  months,  $SD = 2.25$ ). Controlling for education, the Australian mothers used a higher proportion of appropriate mind-related comments and were less likely to use non-attuned mind-related comments than their Chinese counterparts, adjusting for total number of comments. Transcript analysis showed that the Australian mothers used more mental state terms referring to desires and preferences than Chinese mothers. Findings are discussed in relation to cultural influences in childrearing goals, beliefs, and values and the need for cross-cultural validation of the mind-mindedness construct.

**Keywords:** cross-cultural comparison, maternal mind-mindedness, Chinese, Australian

## **Introduction**

Mind-mindedness refers to a parent's proclivity to treat his/her child as an individual with a mind of his or her own and to attribute meaning and agency to the child's behaviour (Meins, 2013). Grounded in attachment theory, the construct grew out of a reconceptualization of Ainsworth's construct of maternal sensitivity (Ainsworth, Bell, & Stayton, 1974) that focused on a caregiver's accurate reading of child cues and appropriate responses to them (Meins, 2013). Two recent reviews (McMahon & Bernier, 2017; Zeegers, Colonnaesi, Stamms, & Meins, 2017) confirm that parental mind-mindedness is a reliable indicator of the quality of the parent-child attachment relationship and predicts child social cognitive development. Almost all research on mind-mindedness has been conducted in Western settings, however, consistent with an "absurdly small" cross-cultural database on parent child attachment in non-western cultures (Mesman, van IJzendoorn, & Sagi-Schwartz, 2016, p. 871; Mesman et al., 2018).

There is some support for the universality of attachment constructs, at least with respect to security of attachment. Parent-child dyads in Chinese samples (Archer et al., 2015) have been classified as securely attached in comparable proportions to Western samples, although it is noted that the studies had very small sample sizes. Further, theoretically predicted associations between maternal sensitivity and secure attachment have been reported in Chinese-American families (Huang, Lewin, Mitchell, & Zhang, 2012) and some convergence regarding beliefs about optimal mothering and ethnographic descriptions of sensitive parenting have been reported across 26 cultural groups (Mesman et al., 2016).

Others have questioned the universality of the attachment construct and argued that there is a Western bias that disregards other culture-specific conceptualizations of relationships (Keller, 2012). Keller and colleagues propose that notions of what constitutes optimal caregiving, particularly maternal sensitivity to child cues, are strongly influenced by

ecological constraints, and differ depending on different cultural conceptions of the ideal child (Keller et al., 2018). We propose that a cross-cultural comparison of caregiver mind-mindedness may shed some light on this debate, for several reasons. First, mind-mindedness is assessed through easily quantifiable maternal mental state (mind-related) language, while assessment of sensitivity relies on more global and subjective ratings of a cluster of maternal verbal and non-verbal behaviours, that may be subject to cultural bias. Secondly, mind-related language directed to children emphasizes internal psychological states and the intentionality underpinning behaviour, as opposed to external social and contextual factors. This emphasis may be influenced by cultural differences in valuing individuality vs. collectivism and group harmony.

The emphasis on parent acknowledgement of child mental states central to mind-mindedness is consistent with a prominent and explicit valuing of child autonomy, individuality and agency in Western cultures. In Confucian cultures on the other hand, good parenting may be viewed as prioritizing the child's capacity to suppress the self, conform and take the perspective of others (Doan & Wang, 2010; Keller et al., 2018). In addition, due to a high cultural value place on education, parents from Asian backgrounds may be encouraged to capitalize during interaction on opportunities for child learning that necessarily involve more parent-led directive language (Ko, 2015). Compared to Western parents, parents from Asian backgrounds tend to use language with a more didactic focus on behaviours, social norms and moral obligations (Doan & Wang, 2010) and less attention to child autonomy and agency (Keller et al., 2007).

To our knowledge just one study has explored cross-cultural differences in mind-mindedness. Hughes, Devine, & Wang (2018) compared the use of mind-related words in the responses of Cantonese speaking parents in Hong Kong and English-speaking parents in the United Kingdom when they were invited to describe their pre-school aged child. Cantonese

speaking parents used fewer mind-related descriptors than their British (English-speaking) counterparts. Expected theoretical associations between higher parent mind-mindedness and more advanced child theory of mind (ToM) understanding were observed in both samples, however. These cultural and linguistic differences in the use of mental state words may be even more apparent during live interaction. To our knowledge no study to date has examined observed mind-mindedness in an Asian parenting context.

In summary, little is known, about the cross-cultural validity of the mind-mindedness construct. The current study makes two novel contributions. First, we compare mothers in Australia and mainland China with respect to mind-related comments during live interaction with toddlers. We hypothesized that mainland Chinese mothers (Mandarin speaking) would use fewer mind-related comments compared to Australian mothers. We also explored differences in appropriate and non-attuned (apparently inaccurate) mind-related comments, possible only with the interactive mind-mindedness measure (Meins, Fernyhough, Fradley & Tucker, 2001). We did not make directional predictions, given no existing evidence. Our study design implemented a protocol developed in Western settings in a Chinese context, an acknowledged etic approach (Cheung, van den Vijver, & Leong, 2011). Cheung et al. note that this approach provides limited understanding of cultural differences. They recommend a bottom-up (emic) approach that describes behaviours and language of the non-western culture in order to identify language styles that may not be observed in Western cultures. Accordingly, we also explore differences in the use of mental state words in the two cultures by analysing transcripts of maternal speech.

## **Method**

### **Participants**

**Australian sample.** Participants were 50 urban Australian mothers ( $M_{\text{age}} = 30.34$  years,  $SD = 3.14$ ) and their first-born infants ( $M_{\text{age}} = 18.98$  months,  $SD = .87$ ; 56% girls). All

mothers were partnered, 62% were tertiary educated, and all spoke only English at home with their child. Mothers who spoke Mandarin or Cantonese as a second or first language were excluded.

**Chinese sample.** A subsample of 50 mothers was selected from a mainland Chinese cohort to approximately match demographic characteristics of the Australian dyads. While not case-matched, this group was comparable to the Australian sample with respect to maternal age ( $M_{age} = 29.18$  years,  $SD = 4.14$ ), child age ( $M_{age} = 18.50$  months,  $SD = 2.25$ ), parity (all first-born), and gender (60% girls). They were all urban dwellers from a large city in Southern China. Mothers spoke Mandarin Chinese and were all married. Like the Australian sample the Chinese sample was mainly tertiary educated (58%).

**Selection of sub-samples for analysis of transcripts.** We used purposive sampling to select a subsample of cases that reflected variability with respect to use of mind-related comments: 15 cases (29.4%) from each subsample were chosen: five with high, five with mid-range and five with low frequency of mind-related comments in order to further explore the use of mental state and internal state words across the range observed.

## **Procedure**

The Australian data were collected first and the same protocols were subsequently followed for the Chinese sample. Studies were approved by the affiliated Human Research Ethics Committees in both countries. Mothers and infants were visited at home when infants were approximately 19 months old and participated in a 15-minute videotaped free-play interaction using a set of toys provided by the researchers. They were told to “Play as you normally would with [child name]”. All mothers’ comments during play were transcribed verbatim from videotapes and coded for mind-mindedness.

## Measures

**Mind-Mindedness Score.** Mind-mindedness was coded from transcripts by native speakers in Mandarin and English for the Chinese and Australian samples, respectively, whilst watching the video footage. Following coding guidelines (Meins & Fernyhough, 2015), any comment with an explicit reference to what the infant might be thinking or feeling, e.g., “You like making noise with that squeaky toy”, or speaking on behalf of the infant, e.g., “I don’t want to play with that anymore”, was classified mind-related and then coded dichotomously as *appropriate* or *non-attuned*. Comments judged by the coder as accurately reflecting the infant’s experience (e.g., “你看起来玩的很高兴。 You are very happy when you are playing.” (Chinese example) and “You want mummy to take the lid off for you” (English example) were classified appropriate, while those that appeared to the coder to be at odds with the infants’ intention/interest (e.g., “你真的很喜欢这个球。 You really like the ball” (after the infant has shown no interest in or positive affect directed towards the ball) were coded non-attuned. Frequencies of mind-related comments were converted to proportional scores (a percentage of total comments directed to the infant) to control for verbosity. Two subsets (33%) of the transcripts for both subsamples were coded by a second coder in the respective languages. Agreement between the coders regarding classification as appropriate or non-attuned was  $k = .80$  for the Australian sub-sample and  $k = .90$  for the Chinese subsample. Disagreements were resolved by conferencing and regular communication between Chinese and Australian coders sought to ensure similar and consistent interpretation of the coding manual.

**Transcript analysis.** The transcripts for the two subsamples were analysed separately by the first and third authors. Following the coding manual and previous research on mental state language (Ruffman, Slade, & Crown, 2003) including in Chinese children (Doan & Wang, 2010; Tardiff & Wellman, 2000), mental state comments were classified as belonging



to one of four categories: desires and preferences (e.g., want 想; like 喜欢; love 爱), cognitions (e.g., think 思考, remember 记得), emotions (e.g., happy 高兴) and evaluative comments about child competence (e.g., clever 聪明).

## Results

### Preliminary Analyses

There were no significant differences in infant age, maternal age, or maternal education all  $ps > .05$ . The distribution of appropriate mind-related comments approximated normal in the Australian sample, however the Shapiro-Wilk test showed data were skewed in the Chinese sample,  $W(50) = .80, p < .001$ . The data for non-attuned comments were highly skewed in both samples: only 32 of the 100 mothers (3 Australian and 29 Chinese mothers) made any non-attuned comments,  $Ws(50) = .80$ , and  $.21$  for the Australian and Chinese samples, respectively,  $ps < .001$ . Neither maternal nor infant age, nor child gender were associated with mind-related comments in either sample. Mothers with a tertiary education made more appropriate comments,  $t(48) = -2.57, p = .01$ , 95% CI  $[-8.56, -1.04]$ , in the Australian sample; more non-attuned comments in the Chinese sample,  $t(48) = -2.11, p = .04$ , 95% CI  $[-1.68, -.04]$ ; and more overall comments in the Australian sample,  $t(48) = -3.07, p = .003$ , 95% CI  $[-75.25, -15.73]$ .

When testing hypotheses, maternal education was controlled and proportional scores (mind-related comments/total number of comments) used to control for verbosity. Because data were skewed, we also ran non-parametric tests (Kruskal-Wallis). The results did not differ, so T-Tests are reported in Table 1 which shows a higher frequency and proportion of appropriate mind-related comments for Australian compared with Chinese mothers, and a higher frequency and proportion of non-attuned mind related comments for Chinese compared with Australian mothers. Because of the extreme skew for non-attuned comments, we recoded this variable as categorical (no non-attuned comments vs. at least one comment).

Chi-square analysis showed a significant difference in likelihood of making non-attuned comments with 58% of Chinese and 6% of Australian mothers making at least one non-attuned comment,  $\chi^2(1, N=100) = 31.08, p < .001$ .

### **Hypothesis Testing: Comparing Australian and Chinese Mothers on Mind-Mindedness**

An analysis of covariance (ANCOVA) was conducted with the proportion of appropriate mind-related comments as the dependent variable and nationality (Australian, Chinese) as the independent variable, whilst controlling for maternal education. There was a significant main effect for nationality,  $F(1,96) = 12.84, p = .001, \eta^2 = .12$ , estimated marginal means were as follows, Chinese sample 0.02, 95% CI [.01, 0.03]; Australian sample 0.04, 95% CI [0.03, 0.05]. The chi-square analysis (reported above) showed a clear difference in likelihood of making non-attuned comments. We confirmed this using logistic regression, controlling for education, Wald's  $\chi^2 = 20.02, OR = 48.33, 95\% CI [8.84, 264.22]$ . Neither education nor the interaction effect (education x nationality) were significant in either analysis.

### *Transcript Analysis*

The two selected subsamples did not differ on maternal education, infant age and maternal age ( $ps < .05$ ). Table 2 shows means, standard deviations and ranges for mind-related comments for the subsamples, also broken down according to references to desires and preferences, cognitions, emotions and behaviours, as originally described by Meins and Fernyhough, (2015). Table 3 provides illustrative excerpts of mothers' comments to illustrate content differences in conversations between Chinese and Australian dyads.

Table 2 shows that most of the mental state comments in both subsamples referred to the child's desires and preferences (79% for Australian and 77% for Chinese mothers). The *t*-test results indicated that Australian mothers used more such comments (mostly the words *want* and *like*) than their Chinese counterparts, and almost all were coded appropriate. However, on

quite a few occasions when Chinese mothers used the term *want* it was coded non-attuned, as recommended in the coding manual (Meins & Fernyhough, 2015), because the mothers used the word to suggest a different activity, for example, “你要踢球球吗? Do you want to play with the ball?” when the child appeared to be absorbed in or *wanting to* play with another toy.

There were no significant differences in use of mental state terms referring to cognitions, emotions and competence, infrequent in both subsamples. Australian mothers used the term *think* more frequently, and all such instances were coded as appropriate (e.g., “Should we try and change the baby’s nappy, do you *think*?”). Chinese mothers used more varied mental state terms referring to child cognitions, such as “你认不认识这是什么? “Do you recognize what it is?”; “你还记得吗? “Do you still remember? In both subsamples reference to emotions was infrequent (none of the Chinese mothers used emotion words, and Australian mothers used only the word “happy”). While there were no significant differences in references to child competence, six Australian mothers used the term *clever* and two Chinese mothers used the term “真厉害. You are so good at doing this” to praise the child’s ability to solve problems (see Table 3 for examples).

## **Discussion**

This study was the first to compare Australian and Mainland Chinese mothers’ use of spontaneous mind related comments during free play. Findings indicated that Australian mothers made more comments overall and more appropriate mind-related comments compared with Chinese mothers, after adjusting for verbosity. Chinese mothers made more mind-related comments that were classified non-attuned compared with Australian mothers. Most of these non-attuned comments were coded from the phrase “do you want to...你想...” being used to redirect the child and suggest another focus of attention or play when the child was absorbed in playing with a particular toy. Transcript analysis showed that Australian mothers made more references to their child’s desires and preferences (*want, like*), while the

two samples were similar in relation to comments about cognitions and emotions (*know*, *feel*), infrequent in both settings.

Findings are consistent with those of Hughes et al. (2018) who reported that Cantonese speaking mothers were less likely to represent their pre-school aged child in terms of mental attributes, however they extend these by demonstrating differences in mental state language during *observed* interaction with younger children. Findings are also consistent with observational studies reporting less autonomy promoting verbal discourse during free play in urban Chinese compared with German mothers of three-month-old infants (Keller et al., 2007) and that immigrant Chinese mothers in the USA used fewer mental state words in a story telling task with their three-year-old children compared with their European American counterparts (Doan & Wang, 2010).

How can we explain these differences and what do they mean for the cross-cultural validity of the mind-mindedness construct? Mind-mindedness stands out among parent-child relational constructs in its explicit emphasis on parent recognition of child individuality, agency and mind. The current results may be attributable to broad cultural and linguistic differences in the attention paid to mind, and the extent to which motivations and mental states are the subject of public discourse and private conversation (Lillard, 1998). The content of child-directed speech is likely to reflect and emphasize valued developmental outcomes. Definitions of the ideal child vary between individualist cultures where there is emphasis on self-expression, individual agency and autonomy, compared with cultures from a Confucian heritage where collectivist values including suppression of self, conformity, harmony and group identity are prioritized (Keller et al., 2007). Findings that Chinese mothers made fewer comments about the child's wants and preferences are consistent with collectivist goals of harmony and conformity. Doan and Wang (2010) noted that immigrant parents of Chinese background were more likely to comment on their three-year old child's behaviour, while

parents of European/American background commented more on the child's thoughts and feelings. In the current study, comments on thoughts and feelings were rare in both groups of parents, perhaps reflecting parent perceptions of the different developmental and receptive language capacities of toddlers compared with three-year old children.

Meins (2013) contends that it is the capacity to classify the *appropriateness* and accuracy of mind-related comments that best captures the essence of Ainsworth's maternal sensitivity construct (Ainsworth et al., 1974). Current findings that Chinese mothers were more likely to make comments that were judged *non-attuned* require careful interpretation, however. In Western samples, non-attuned comments are typically rare (McMahon & Bernier, 2017), as they were in the current study. When they do occur, non-attuned comments have been shown to predict emotion dysregulation in infants (McMahon & Newey, 2018) and insecure parent-child attachment relationships (Meins, Bureau, & Fernyhough, 2018).

Caution is needed in extrapolating this interpretation to different cultural settings. While Mesman et al. (2018) have argued for the universality of maternal sensitivity, Keller and colleagues (2018) have questioned the cross-cultural validity of the proposition that sensitive responsiveness equates with good parenting. In particular, they question the universality of the following indicators of "optimal" interaction: that infants take the lead, that caregivers follow child cues, and that interactions are based on reciprocal turn-taking exchanges between quasi-equal partners. Close analysis of the transcripts indicated that most comments classified non-attuned in both samples involved the mother asking the child if he/she *wanted* to attend to or play with a new toy, whilst the child was absorbed in playing with another toy. In other words, the parent was over-riding the child's interests and directing the interaction in order to stimulate a new activity, and the Chinese parents did this more frequently.

Extensive research indicates that parents of Chinese background are more likely than Western parents to take the lead in interactions with young children adopting a more authoritarian parenting style (see Chau & Tseng, 2002 for a review). Chao and Tseng argue that ethnocentric interpretations of authoritarian parenting styles can be misleading, however, as these parenting styles have different implications for child development in an Asian compared with a Western context. They note that the concept of *xiao shun* 孝顺 (highly directive training) is viewed as an important part of the parenting role that needs to be incorporated in studies of families from Asian backgrounds and examined alongside other parental behaviours. Chinese mothers like to capitalize on opportunities during play to impart knowledge (e.g., naming objects, encouraging the ability to count) and they may begin this directive training from an early age (Ko, 2015). From this perspective, redirecting the child's attention during play, may have served a teaching goal, (e.g., "Do you know how many balls are there?" "Do you know the colour of the duck?") as the parent perhaps judged there was more to be learned by moving on to a new activity.

Linguistic features of Mandarin phrases may also have contributed to lower scores for mind-mindedness. The Chinese mothers frequently used utterances such as "我们来踢球, 好不好? Let's kick the ball, is that okay", which can be understood as "Do *you* want us to kick the ball?" However, comments such as these were not coded as mind-related because there were no explicit mental state words. Nonetheless, the child's collaboration was implicitly sought raising questions about mind-mindedness coding in a different language system and in a different culture.

## **Strengths and Limitations**

The current study had several strengths. Coding from video of live interactions meant mind-related comments could be classified as appropriate or non-attuned. While it is possible that some cultural bias occurred in coding, we took care to use culturally sensitive protocols. Both Mandarin-speaking coders were bilingual and had experience and training in coding mind-mindedness in English. Frequent conferencing with Australian coders ensured similar interpretation of the coding manual, particularly in relation to non-attuned comments. Nonetheless, it is possible that systematic differences in coding could have occurred as inter-rater reliability was established separately in the two samples.

The study involved an etic approach, replicating in China a study protocol and methodology developed in a Western setting, typical of research seeking to establish the “universality” of Western constructs (Cheung et al., 2011). Future research providing an emic or “bottom up” description of the interactive behaviours and language characteristic of parent-child interactions in China would be valuable in identifying qualities of interactive behavior not present in Western cultures. Our transcript analysis for a subset of mothers went some way to addressing this, by illustrating the types of utterances the Chinese mothers made. We also acknowledge the small sample size but note that the samples were well matched on demographic variables. Nonetheless generalizability is limited to urban, well-educated parents.

In conclusion, whilst these differences between Australian and Chinese mothers in the use of mind-related speech are interesting and warrant further research, it is important to avoid simplistic East-West dichotomies and cultural stereotypes. Autonomy support and connectedness/compliance are important childrearing goals that can co-exist in most contemporary cultures, with cross-cultural differences likely reflecting the salience of particular developmental goals. Any such differences do not necessarily indicate different patterns of relationships between mind-related language and child outcomes, as evident in

Hughes et al. (2018), where parent use of mind-related descriptors of their children were related to child Theory of Mind acquisition. We did not include measures of parent sensitivity, parent-child attachment or child social cognitive development, so any implications of cultural differences in the use of mental state language for the parent-child relationship and later child development can only be speculative. A longitudinal investigation would better clarify the links between maternal mind-mindedness and later child developmental and social-emotional outcomes, to see if the same associations noted in Western samples apply in Chinese families.



## References

- Ainsworth, M. D. S., Bell, S. M., & Stayton, D. F. (1974). Infant-mother attachment and social development: Socialization as a product of reciprocal responsiveness to signals. In *The integration of a child into a social world* (pp. 99–135). New York, NY, US: Cambridge University Press.
- Archer, M., Steele, M., Lan, J., Jin, X., Herreros, F., & Steele, H. (2015). Attachment between infants and mothers in China: Strange situation procedure findings to date and a new sample. *International Journal of Behavioral Development*, 39(6), 485–491.  
<https://doi.org/10.1177/0165025415575765>
- Chao, R., & Tseng, V. (2002). Parenting of Asians. In M. H. Bornstein (Ed.), *Handbook of parenting: Social conditions and applied parenting*, (Vol. 4, pp. 59-93). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Cheong, F.M, van de Vijver, F.J.R., & Leong, F.T.L. (2011). Toward a new approach to the study of personality in culture. *American Psychologist*, 66, 593-603.  
<https://doi: 10.1037/a0022389>
- Doan, S. N., & Wang, Q. (2010). Maternal discussions of mental states and behaviors: Relations to emotion situation knowledge in European American and immigrant Chinese children. *Child Development*, 81(5), 1490–1503. <https://doi.org/10.1111/j.1467-8624.2010.01487.x>
- Huang, Z. J., Lewin, A., Mitchell, S. J., & Zhang, J. (2012). Variations in the relationship between maternal depression, maternal sensitivity, and child attachment by race/ethnicity and nativity: Findings from a nationally representative cohort study. *Maternal and Child Health Journal*, 16(1), 40–50. <https://doi.org/10.1007/s10995-010-0716-2>

- Hughes, C., Devine, R. T., & Wang, Z. (2018). Does parental mind-mindedness account for cross-cultural differences in preschoolers' theory of mind? *Child Development*, 89(4), 1296–1310. <https://doi.org/10.1111/cdev.12746>
- Keller, H., Abels, M., Borke, J., Lamm, B., Su, Y., Wang, Y., & Lo, W. (2007). Socialization environments of Chinese and Euro-American middle-class babies: Parenting behaviors, verbal discourses and ethnotheories. *International Journal of Behavioral Development*, 31(3), 210–217. <https://doi.org/10.1177/0165025407074633>
- Keller, H., Bard, K., Morelli, G., Chaudhary, N., Vicedo, M., Rosabal-Coto, M., ... Gottlieb, A. (2018). The myth of universal sensitive responsiveness: comment on Mesman et al. (2017). *Child Development*, 89(5), 1921–1928. <https://doi.org/10.1111/cdev.13031>
- Ko, C.-S. (2015). Teaching at an Early Age. In S. Hsu & Y.-Y. Wu (Eds.), *Education as cultivation in Chinese culture* (pp. 63–86). Singapore: Springer Singapore. [https://doi.org/10.1007/978-981-287-224-1\\_4](https://doi.org/10.1007/978-981-287-224-1_4)
- Lillard, A. S. (1998). Wanting to be it: Children's understanding of intentions underlying pretense. *Child Development*, 69(4), 981–993. <https://www.jstor.org/stable/1132357>
- McMahon, C. A., & Bernier, A. (2017). Twenty years of research on parental mind-mindedness: Empirical findings, theoretical and methodological challenges, and new directions. *Developmental Review*, 46, 54–80. <https://doi.org/10.1016/j.dr.2017.07.001>
- McMahon, C. A., & Newey, B. (2018). Non-attuned mind-mindedness, infant negative affect, and emotional availability: Assessing mind-mindedness during the still-face paradigm. *Infancy*, 23(6), 873–892. <https://doi.org/10.1111/infa.12245>
- Meins, E. (2013). Sensitive attunement to infants' internal states: Operationalizing the construct of mind-mindedness. *Attachment & Human Development*, 15(5-6), 524–544. <https://doi.org/10.1080/14616734.2013.830388>

- Meins, E., Fernyhough, C., Fradley, E., & Tuckey, M. (2001). Rethinking maternal sensitivity: Mothers' comments on infants' mental processes predict security of attachment at 12 months. *The Journal of Child Psychology and Psychiatry and Allied Disciplines*, 42(5), 637–648. <https://doi.org/10.1017/S0021963001007302>
- Meins, E., Bureau, J.-F., & Fernyhough, C. (2018). Mother-child attachment from infancy to the preschool years: Predicting security and stability. *Child Development*, 89, 1022-1038. <https://doi.org/10.1111/cdev.12778>
- Meins, E., & Fernyhough, C. (2015). *Mind-mindedness coding manual*, Version 2.2... Unpublished manuscript. University of York, York, UK.
- Mesman, J., Minter, T., Angged, A., Cissé, I. A. H., Salali, G. D., & Migliano, A. B. (2018). Universality without uniformity: A culturally inclusive approach to sensitive responsiveness in infant caregiving. *Child Development*, 89(3), 837–850. <https://doi.org/10.1111/cdev.12795>
- Mesman, J., van IJzendoorn, M., Behrens, K., Carbonell, O. A., Cárcamo, R., Cohen-Paraira, I., ... Zreik, G. (2016). Is the ideal mother a sensitive mother? Beliefs about early childhood parenting in mothers across the globe. *International Journal of Behavioral Development*, 40(5), 385–397. <https://doi.org/10.1177/0165025415594030>
- Zeegers, M. A. J., Colonnaesi, C., Stams, G.-J. J. M., & Meins, E. (2017). Mind matters: A meta-analysis on parental mentalization and sensitivity as predictors of infant–parent attachment. *Psychological Bulletin*, 143, 1245-1272. <http://dx.doi.org/10.1037/bul0000114>

Table 1

Mean (Standard Deviation), *t*-tests and effect size for Mind-Related and Total Comments (n=100)

Mind-related Comments	Australian sample	Chinese sample	Mean Difference	<i>t</i> -tests	Cohen's <i>d</i> effect size
	( <i>n</i> = 50)	( <i>n</i> = 50)		Confidence Interval (CI)	
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )			
	range	range			
Appropriate (frequency)	11.04 (6.77)	3.34 (3.10)	-7.74	<i>t</i> (98) = -7.34, <i>p</i> < .001,	<i>d</i> = 1.56
	1 to 27	0 to 12		CI [ -9.83, -5.65]	
Appropriate (proportion)	.05 (.03)	.02 (.02)	-.02	<i>t</i> (98) = -3.69, <i>p</i> < .001,	<i>d</i> = 1.20
	0 to .14	0 to .13		CI [ -.03, -.01]	
Non-attuned (frequency)	.12 (.59)	1.24 (1.49)	1.12	<i>t</i> (98) = 4.93, <i>p</i> < .001,	<i>d</i> = -1.08
	0 to 4	0 to 6		CI [ .67, 1.57]	
Non-attuned (proportion)	.00 (.00)	.01 (.01)	-0.01	<i>t</i> (98) = 3.38, <i>p</i> < .001,	<i>d</i> = -2.00
	0 to .05	0 to .03		CI [.001, 0.00]	
Total comments	207.94 (55.00)	155.96 (75.09)	-51.98	<i>t</i> (98) = -3.95, <i>p</i> < .001,	<i>d</i> = 0.80
	1 to 27	1 to 17		CI [ -78.10, -25.86]	

Table 2

Frequency (Mean, SD, Range) of Mind-Related Comments: Australian and Chinese Sub-Samples

Mind-related comments		Australia		China		T-tests, Confidence Interval (CI) and effect size
		(6 boys, 9 girls)		(5 boys, 10 girls)		
		M (SD)	Range	M (SD)	Range	
	Appropriate	12.47 (9.91)	1 to 28	4.27 (4.95)	0 to 14	$t(28) = 2.86, p < .01$ , CI [2.34, 14.06], $d = .66$
	Non-attuned	.00 (.00)	0 to 0	.80 (1.08)	0 to 3	$t(28) = -2.86, p < .01$ , CI [-1.37, -.23], $d = -1.48$
	Total mind-related comments	12.47 (9.91)	1 to 28	5.07 (5.60)	0 to 15	$t(28) = 2.52, p < .05$ , CI [1.38, 13.42], $d = .95$
Categories of	Desires and preferences	9.87 (8.52)	1 to 26	3.93 (4.65)	0 to 15	$t(28) = 2.37, p < .05$ , CI [ .80, 11.07], $d = .90$
mind related	Cognition	1.67 (2.47)	0 to 6	.87 (1.92)	0 to 7	$t(28) = 1.00, p = .33$ , CI [ -.86, 2.45], $d = 1.27$
comments	Emotion	.13 (.35)	0 to 1	.00 (.00)	0 to 0	$t(28) = 1.47, p = .15$ , CI [.05, .32], $d = .72$

Table 3. Examples of Mental State Terms Used by Australian and Chinese Mothers

Mental state terms	Australian sub-sample	Chinese sub-sample
Desires and Preferences	(ID 20731) Want to play with the cars? Want to play with the baby? (ID 20991) Do you want to take everything out? (ID 24491) Do you want mumma to help? Would you like to do that?	(ID 76) 你不要跟鸭鸭玩? Do you want to play with the duck? 你要踢球球吗? Do you want to play with the ball? (Its coded as non attuned as the child is interested in something else.) (ID 47) （你）喜不喜欢? Do you like it? 你想不想看车车嘛? Do you want to have a look at the car? 你还是喜欢这个呀。 You still like it very much.
Cognition	(ID 20991) Do you think she's had enough milk? Do you know what we can do with that one?  (ID 22491) Do you think it goes in there? Should we try and change the baby's nappy do you think?	(Id 47) 你对这个感有兴趣呀。 You are interested in this.  (ID 103) 你认得是什么吗? Do you recognize what it is? 认不到了是吧? You cannot remember, right?
Emotions	(ID 20731) (You are) happy with the cars.	N/A
Behavioural	(ID 24491) Oh, very clever. (ID 20731) Smarty pants! Clever man. (ID 24361) You're clever.	（ID 5） (做这个)好厉害呀。 You are good at doing this. （完成这个）真厉害。（鼓掌） You are amazing at doing this . (Applaud).

